DATASHEET - DC1-349D5FB-A20CE1



Variable frequency drives; 3-/3-phase 400 V; 9.5 A; 4 kW; EMC filters; braking transistor



Specification for general requirements: IEC/EN 61800-2

Part no. DC1-349D5FB-A20CE1

Catalog No. 185755

Eaton Catalog No. DC1-349D5FB-A20CE1

EL-Nummer 4137032

(Norway)

Technical data General

Standards

Standards			Specification for general requirements: IEC/EN 61800-2 EMC requirements: IEC/EN 61800-3 Safety requirements: IEC/EN 61800-5-1
Certifications			CE, UL, cUL, RCM, Ukr SEPRO, EAC
Production quality			RoHS, ISO 9001
Climatic proofing	ρ_{W}	%	< 95%, average relative humidity (RH), non-condensing, non-corrosive
Ambient temperature			
operation (150 % overload)	8	°C	-10 - +50
Storage	θ	°C	-40 - +60
Radio interference level			
Radio interference class (EMC)			C2, C3, depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.
Environment (EMC)			1st and 2nd environments as per EN 61800-3
maximum motor cable length	I	m	C2 ≤ 5 m C3 ≤ 25 m
Mounting position			Vertical
Altitude		m	0 - 1000 m above sea level Above 1000 m: 1% derating for every 100 m max. 4000 m
Degree of Protection			IP20/NEMA 0
Protection against direct contact			BGV A3 (VBG4, finger- and back-of-hand proof)
Main circuit			
Supply			
Rated operational voltage	U _e		400 V AC, 3-phase 480 V AC, 3-phase
Mains voltage (50/60Hz)	U_LN	V	380 (-10%) - 480 (+10%)
Input current (150% overload)	I _{LN}	Α	11.5
System configuration			AC supply systems with earthed center point
Supply frequency	f_{LN}	Hz	50/60
Frequency range	f_{LN}	Hz	48 - 62
Mains switch-on frequency			Maximum of one time every 30 seconds
Power section			
Function			Frequency inverter with internal DC link and IGBT inverter
Overload current (150% overload)	IL	Α	14.25
max. starting current (High Overload)	I _H	%	175
Note about max. starting current			for 3.75 seconds every 600 seconds
Output voltage with V_{e}	U ₂		400 V AC, 3-phase 480 V AC, 3-phase
Output Frequency	f ₂	Hz	0 - 50/60 (max. 500)
Switching frequency	f _{PWM}	kHz	16 adjustable 4 - 32 (audible)
Operation Mode			U/f control Speed control with slip compensation sensorless vector control (SLV)
Frequency resolution (setpoint value)	Δf	Hz	0.1
Rated operational current			
At 150% overload	I _e	Α	9.5

Power 1058	Note			Rated operational current at an operating frequency of 16 kHz and an ambient air temperature of +50 $^{\circ}\text{C}$
Efficiency	Power loss			
Missimum leakage current to ground (PE) without motor Ige MA 12.6 Radio interference suppression filter Bristed with Radio interference suppression filter Bristed hoppor 7-injuid copiny assambly	Heat dissipation at rated operational current $\rm I_{e}$ =150 $\%$	P_{V}	W	136
Finance saine Finance saine Motor feeter Note	Efficiency	η	%	96.6
Brake changer Parameter	Maximum leakage current to ground (PE) without motor	I _{PE}	mA	12.6
Note Note Command internally and externally ventilated 4 pales, three phase asynchronous motors with 1500 pan ⁻¹ at 50 Hz or 1800 min ⁻¹ at 50 Hz Note Overload Vertical and cycle for 80 s every 800 s Note Vertical and cycle for 80 s every 800 s Note Vertical and cycle for 80 s every 800 s Note Vertical and cycle for 80 s every 800 s Note Vertical and cycle for 80 s every 800 s Note Vertical and cycle for 80 s every 800 s Note Vertical and cycle for 80 s every 800 s Note Vertical and cycle for 80 s every 800 s Note Vertical and cycle for 80 s every 800 s Note Vertical and cycle for 80 s every 800 s Note Vertical and cycle for 80 s every 800 s Note Vertical and cycle for 80 s every 800 s Post Control Vertical and cycle for 80 s every 800 s Apparent gover Vertical and cycle for 80 s every 800 s Apparent gover Vertical and cycle for 80 s every 800 s Apparent gover Vertical cycle for 80 s every 800 s Apparent gover at rated operation 800 y S VAX 3 Braking for the state operation 800 y	Fitted with			Brake chopper
Note	Frame size			FS2
Note motors with 1500 rpm ¹ at 50 Hz or 1800 min ² at 60 Hz Note vertoad cycle for 50 a every 500 s at 400 V, 50 Hz 150 % Overload P kW at 400 V, 50 Hz 150 % Overload P kW at 440 % 50 Hz 150 % Overload P MP 5 maximum permissible cable length I minimum permissible cable length screened; 100 screened; with motor choke; 200 uniscreened; 300 Apparent power Apparent power at rated operation 400 V S kVA 5.5 Apparent power at rated operation 400 V S kVA 7.9 Braking function max. 30 % MN max. 30 % MN Distriction max. 30 % MN max. 30 % MN Braking function max. 30 % MN max. 30 % MN Braking function Max. 100% of rated operational current Levith external braking resistance max. 30 % MN Braking function Max. 100% of rated operational current Levith external braking resistance Max. 100% of rated operational current Levith external braking resistance Braking function of threshold for the braking transistor Upc V 780 V DC Control	Motor feeder			
Note	Note			motors with 1500 rpm ⁻¹ at 50 Hz or 1800 min ⁻¹ at 60 Hz
150 % Overload	Note			Overload cycle for 60 s every 600 s
Note 150 % Overload P	Note			at 400 V, 50 Hz
150 % Overload maximum permissible cable length apparent power Apparent power Apparent power at rated operation 400 V S KVA 6.58 Braking function Standard braking torque Braking torque with external braking resistance minimum external braking resistance minimum external braking resistance minimum external braking resistance minimum external braking resistance Reference voltage Analog inputs Analog inputs Analog inputs Analog inputs Digital input	150 % Overload	P	kW	4
maximum permissible cable length	Note			at 440 - 480 V, 60 Hz
Apparent power Apparent power at rated operation 400 V S KVA Apparent power at rated operation 400 V S KVA Apparent power at rated operation 400 V S KVA Apparent power at rated operation 400 V S KVA Apparent power at rated operation 400 V S KVA Apparent power at rated operation 400 V S KVA Braking function Standard braking torque with external braking resistance Minimum external braking resistance Minimum external braking resistance Minimum external braking resistance Minimum external braking resistance Witch on threshold for the braking transistor Upc V 780 V DC Control section Reference voltage Analog inputs Analog inputs Analog uptuts Uja 1 parameterizable, 0 - 10 V DC, 0/4 - 20 mA Analog outputs Digital outputs Input S 1 parameterizable, 0 - 10 V DC, 0/4 - 20 mA Analog outputs Digital outputs Fellow (Upc) Digital (Upc	150 % Overload	P	HP	5
Apparent power at rated operation 400 V S KVA 5.58 Apparent power at rated operation 480 V S KVA 7.9 Braking function Standard braking torque D C braking torque Braking torque with external braking resistance minimum external braking resistance minimum external braking resistance minimum external braking resistance Max. 100% of rated operational current I _n , variable Switch- on threshold for the braking transistor U _D V 780 V DC Cotton Reference voltage V _S V 10 V DC (max. 10 mA) Analog inputs Analog orputs Digital inputs Digital inputs Digital outputs Digital	maximum permissible cable length	I	m	screened, with motor choke: 200 unscreened: 150
Apparent power at rated operation 480 V Braking function Standard braking torque DC braking torque Braking torque with external braking resistance minimum external braking resistance Refurence voltage Ug V 700 V DC TOUTO T	Apparent power			
Braking function Standard braking torque DC braking torque Braking torque with external braking resistance minimum external braking resistance minimum external braking resistance Menimum external braking resistance Menimum external braking resistance Menimum external braking resistance Move Switch-on threshold for the braking transistor Ua Vo Control section Reference voltage Max. 100% of rated operational current le with external braking resistor Move Control section Reference voltage Vo Qu Vo	Apparent power at rated operation 400 V	S	kVA	6.58
Standard braking torque DC braking torque Braking torque with external braking resistance minimum external braking resistance minimum external braking resistance minimum external braking resistance Switch-on threshold for the braking transistor Upc V 780 V DC Cotto-Cotto-Cotto-Section Reference voltage Us V 10 V DC (max. 10 mA) Analog inputs Analog outputs Digital outputs Relay outputs Digital outpu	Apparent power at rated operation 480 V	S	kVA	7.9
DC braking torque Braking torque with external braking resistance minimum external braking resistance minimum external braking resistance minimum external braking resistance Rmin	Braking function			
Braking torque with external braking resistance minimum external braking resistance minimum external braking resistance Switch-on threshold for the braking transistor Upc V 780 V DC Control section Reference voltage Us V 10 V DC (max. 10 mA) Analog inputs Analog outputs Digital inputs Digital inputs Digital outputs Digital outp	Standard braking torque			max. 30 % MN
minimum external braking resistance R _{min} 0 100 Switch-on threshold for the braking transistor U _{DC} V 780 V DC Control section Reference voltage U _S V 10 V DC (max. 10 mA) Analog inputs 2, parameterizable, 0 - 10 V DC, 0/4 - 20 mA Analog outputs 4, parameterizable, 0 - 10 V DC, 0/4 - 20 mA Digital inputs 4, parameterizable, 0 - 10 V DC, 0/4 - 20 mA Relay outputs 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA Relay outputs 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA Relay outputs 0 P-Bus (RS485)/Modbus RTU, CANOpen® Assigned switching and protective elements Power Wring FAZ-B16/3 ELC (Type B, gG), 150 % FAZ-B16/3 FAZ-B16/3 UL (Class CC or J) A 15 Motor feeder DX-LM3-016 DX-LM3-016 Motor feeder DX-LM3-011 DX-LM3-011 150 % overload (CT/l _H , at 50 °C) DX-LM3-011 DX-LM3-010 150 % overload (CT/l _H , at 50 °C) DX-LM3-010 DX-RM100-0K8 100 % duty factor (DF)	DC braking torque			max. 100% of rated operational current l _{e,} variable
Switch-on threshold for the braking transistor Voc 780 V DC Control section Voc 10 V DC (max. 10 mA) Reference voltage Voc 10 V DC (max. 10 mA) Analog inputs 2, parameterizable, 0 - 10 V DC, 0/4 - 20 mA Analog outputs 1, parameterizable, 0 - 10 V Digital inputs 4, parameterizable, max. 30 V DC Relay outputs 1, parameterizable, 24 V DC Relay outputs (built-in) 0P-Bus (RS485)/Modbus RTU, CANopen® Assigned switching and protective elements Power Wiring FAZ-B16/3 LEC (Type B, gG), 150 % FAZ-B16/3 UL (Class CC or J) A 15 150 % overload (CT/I _H , at 50 °C) A 15 Motor feeder DX-LN3-016 150 % overload (CT/I _H , at 50 °C) DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-LM3-010 150 % overload (CT/I _H , at 50 °C) DX-LM3-010 150 % overload (CT/I _H , at 50 °C) DX-LM3-010 150 % overload (CT/I _H , at 50 °C) DX-LM3-010 150 % overload (CT/I	Braking torque with external braking resistance			Max. 100% of rated operational current le with external braking resistor
Control section Reference voltage Us V 10 V DC (max. 10 mA) Analog inputs 2, parameterizable, 0 - 10 V DC, 0/4 - 20 mA Analog outputs 1, parameterizable, 0 - 10 V Digital inputs 4, parameterizable, max. 30 V DC Digital outputs 1, parameterizable, 24 V DC Relay outputs 1, parameterizable, N/0, 6 A (250 V, AC-1)/5 A (30 V, DC-1) Interface/field bus (built-in) 0P-Bus (RS485)/Modbus RTU, CANopen® Assigned switching and protective elements FAZ-B16/3 UL (Class CC or J) 15 5 UL (Class CC or J) A 15 150 % overload (CT/I _H , at 50 °C) DX-LN3-016 Motor feeder DX-LN3-016 150 % overload (CT/I _H , at 50 °C) DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-SIN3-010 10 % duty factor (DF) DX-SR100-0K8 20 % duty factor (DF) DX-BR100-1K6	minimum external braking resistance	R_{min}	Ω	100
Reference voltage Us V 10 V DC (max. 10 mA) Analog inputs 2, parameterizable, 0 - 10 V DC, 0/4 - 20 mA Analog outputs 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA Digital inputs 4, parameterizable, 0 - 10 V DC Digital outputs 1, parameterizable, max. 30 V DC Relay outputs 1, parameterizable, N/O, 6 A (250 V, AC-1)/5 A (30 V, DC-1) Interface/field bus (built-in) 0P-Bus (RS485)/Modbus RTU, CANopen® Assigned switching and protective elements FAZ-B16/3 UL (Class CC or J) 15 150 % overload (CT/l _H , at 50 °C) A 15 Motor feeder DX-LN3-016 150 % overload (CT/l _H , at 50 °C) DX-LM3-011 150 % overload (CT/l _H , at 50 °C) DX-LM3-010 150 % overload (CT/l _H , at 50 °C) DX-LM3-010 150 % overload (CT/l _H , at 50 °C) DX-LM3-010 150 % overload (CT/l _H , at 50 °C) DX-BR100-0K8 20 % duty factor (DF) DX-BR100-1K6	Switch-on threshold for the braking transistor	U _{DC}	V	780 V DC
Analog inputs Analog outputs 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 1, parameterizable, 0 - 10 V 1, parameterizable, max. 30 V DC 1) gital inputs 4, parameterizable, max. 30 V DC 1) postal outputs 1, parameterizable, 24 V DC Relay outputs 1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) 1) Interface/field bus (built-in) Assigned switching and protective elements Power Wirring 1EC (Type B, gG), 150 % 1EC (Type B, gG), 150 % 1U. (Class CC or J) 150 % overload (CT/H, at 50 °C) 150 % overl	Control section			
Analog outputs Digital inputs 4, parameterizable, 0 - 10 V 4, parameterizable, max. 30 V DC Digital outputs 1, parameterizable, max. 30 V DC 1, parameterizable, 24 V DC Relay outputs 1, parameterizable, N/O, 6 A (250 V, AC-1)/5 A (30 V, DC-1) Interface/field bus (built-in) Assigned switching and protective elements Power Wirring IEC (Type B, gG), 150 % UL (Class CC or J) 150 % overload (CT/I _H , at 50 °C) Motor feeder 150 % overload (CT/I _H , at 50 °C) DX-LM3-011 DX-SIN3-010 DX-SIN3-010 DX-BR100-1K6	Reference voltage	U_s	V	10 V DC (max. 10 mA)
Digital inputs 4, parameterizable, max. 30 V DC Digital outputs 1, parameterizable, 24 V DC Relay outputs 1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) Interface/field bus (built-in) 0P-Bus (RS485)/Modbus RTU, CANopen® Assigned switching and protective elements Power Wiring IEC (Type B, gG), 150 % FAZ-B16/3 UL (Class CC or J) A 15 150 % overload (CT/I _H , at 50 °C) DX-LN3-016 Motor feeder 150 % overload (CT/I _H , at 50 °C) DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-LM3-010 10 % duty factor (DF) DX-BR100-0K8 20 % duty factor (DF) DX-BR100-1K6	Analog inputs			2, parameterizable, 0 - 10 V DC, 0/4 - 20 mA
Digital outputs Relay outputs It parameterizable, 24 V DC 1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) Interface/field bus (built-in) OP-Bus (RS485)/Modbus RTU, CANopen® Assigned switching and protective elements Power Wiring IEC (Type B, gG), 150 % UL (Class CC or J) 150 % overload (CT/I _H , at 50 °C) Motor feeder 150 % overload (CT/I _H , at 50 °C) DX-LN3-016 DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-BR100-0K8 DX-BR100-0K8 DX-BR100-1K6	Analog outputs			1, parameterizable, 0 - 10 V
Relay outputs 1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) Interface/field bus (built-in) 0P-Bus (RS485)/Modbus RTU, CANopen® Assigned switching and protective elements Power Wiring IEC (Type B, gG), 150 % FAZ-B16/3 UL (Class CC or J) A 15 150 % overload (CT/I _H , at 50 °C) DX-LN3-016 Motor feeder 150 % overload (CT/I _H , at 50 °C) DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-SIN3-010 10 % duty factor (DF) DX-BR100-0K8 20 % duty factor (DF) DX-BR100-1K6	Digital inputs			4, parameterizable, max. 30 V DC
Interface/field bus (built-in) Assigned switching and protective elements Power Wiring IEC (Type B, gG), 150 % ILL (Class CC or J) 150 % overload (CT/I _H , at 50 °C) A 15 Motor feeder 150 % overload (CT/I _H , at 50 °C) DX-LN3-016 DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-SIN3-010 DX-SIN3-010 DX-BR100-0K8 20 % duty factor (DF) DX-BR100-1K6	Digital outputs			1, parameterizable, 24 V DC
Assigned switching and protective elements Power Wiring IEC (Type B, gG), 150 % UL (Class CC or J) 150 % overload (CT/I _H , at 50 °C) Motor feeder 150 % overload (CT/I _H , at 50 °C) DX-LN3-016 DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-SIN3-010 DX-SIN3-010 DX-BR100-0K8 DX-BR100-1K6	Relay outputs			1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)
Power Wiring FAZ-B16/3 IEC (Type B, gG), 150 % FAZ-B16/3 UL (Class CC or J) A 15 150 % overload (CT/I _H , at 50 °C) DX-LN3-016 Motor feeder DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-SIN3-010 10 % duty factor (DF) DX-BR100-0K8 20 % duty factor (DF) DX-BR100-1K6				OP-Bus (RS485)/Modbus RTU, CANopen®
IEC (Type B, gG), 150 % FAZ-B16/3 UL (Class CC or J) A 15 150 % overload (CT/I _H , at 50 °C) DX-LN3-016 Motor feeder DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-SIN3-010 10 % duty factor (DF) DX-BR100-0K8 20 % duty factor (DF) DX-BR100-1K6				
UL (Class CC or J) 150 % overload (CT/I _H , at 50 °C) Motor feeder 150 % overload (CT/I _H , at 50 °C) DX-LM3-016 DX-LM3-011 DX-LM3-011 DX-SIN3-010 DX-SIN3-010 DX-BR100-0K8 DX-BR100-1K6				
150 % overload (CT/I _H , at 50 °C) Motor feeder 150 % overload (CT/I _H , at 50 °C) DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-SIN3-010 DX-SIN3-010 DX-BR100-0K8 DX-BR100-1K6				· ·
Motor feeder DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-SIN3-010 150 % overload (CT/I _H , at 50 °C) DX-SIN3-010 10 % duty factor (DF) DX-BR100-0K8 20 % duty factor (DF) DX-BR100-1K6			А	
150 % overload (CT/I _H , at 50 °C) DX-LM3-011 150 % overload (CT/I _H , at 50 °C) DX-SIN3-010 10 % duty factor (DF) DX-BR100-0K8 20 % duty factor (DF) DX-BR100-1K6				DX-LN3-016
150 % overload (CT/I _H , at 50 °C) 10 % duty factor (DF) DX-SIN3-010 DX-BR100-0K8 DX-BR100-1K6				
10 % duty factor (DF) DX-BR100-0K8 20 % duty factor (DF) DX-BR100-1K6				DX-LM3-011
20 % duty factor (DF) DX-BR100-1K6	150 % overload (CT/I _H , at 50 °C)			DX-SIN3-010
	10 % duty factor (DF)			DX-BR100-0K8
40 % duty factor (DF) DX-BR100-6K2	20 % duty factor (DF)			DX-BR100-1K6
	40 % duty factor (DF)			DX-BR100-6K2

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	А	9.5
Heat dissipation per pole, current-dependent	P _{vid}	W	0
Equipment heat dissipation, current-dependent	P _{vid}	W	136
Static heat dissipation, non-current-dependent	P _{vs}	W	0

Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	-10
Operating ambient temperature max.		°C	50
			Operation (with 150 % overload)
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects $$			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Meets the product standard's requirements.
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			Meets the product standard's requirements.
10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			Is the panel builder's responsibility.
10.8 Connections for external conductors			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.
10.10 Temperature rise			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			Is the panel builder's responsibility. The specifications for the switch gear must be observed. $\label{eq:constraint}$
10.12 Electromagnetic compatibility			Is the panel builder's responsibility. The specifications for the switch gear must be observed. $\label{eq:constraint}$
10.13 Mechanical function			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 6.0

Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857)

Electric engineering, automation, process control engineering / Electrical drive / St	tatic frequency converter	/ Static frequency converter = < 1 kv (ecl@ss8.1-27-02-31-01 [AKE177011])
Mains voltage	V	380 - 480
Mains frequency		50/60 Hz
Number of phases input		3
Number of phases output		3
Max. output frequency	Hz	500
Max. output voltage	V	500
Rated output current I2N	А	9.5
Max. output at quadratic load at rated output voltage	kW	4
Max. output at linear load at rated output voltage	kW	4
With control unit		Yes
Application in industrial area permitted		Yes
Application in domestic- and commercial area permitted		Yes
Supporting protocol for TCP/IP		No
Supporting protocol for PROFIBUS		No
Supporting protocol for CAN		Yes
Supporting protocol for INTERBUS		No
Supporting protocol for ASI		No
Supporting protocol for KNX		No
Supporting protocol for MODBUS		Yes
Supporting protocol for Data-Highway		No

Supporting protocol for DeviceNet		No
Supporting protocol for SUCONET		No
Supporting protocol for LON		No
Supporting protocol for PROFINET IO		No
Supporting protocol for PROFINET CBA		No
Supporting protocol for SERCOS		No
Supporting protocol for Foundation Fieldbus		No
Supporting protocol for EtherNet/IP		Yes
Supporting protocol for AS-Interface Safety at Work		No
Supporting protocol for DeviceNet Safety		No
Supporting protocol for INTERBUS-Safety		No
Supporting protocol for PROFIsafe		No
Supporting protocol for SafetyBUS p		No
Supporting protocol for other bus systems		Yes
Number of HW-interfaces industrial Ethernet		0
Number of HW-interfaces PROFINET		0
Number of HW-interfaces RS-232		0
Number of HW-interfaces RS-422		0
Number of HW-interfaces RS-485		1
Number of HW-interfaces serial TTY		0
Number of HW-interfaces USB		0
Number of HW-interfaces parallel		0
Number of HW-interfaces other		0
With optical interface		No
With PC connection		Yes
Integrated breaking resistance		Yes
4-quadrant operation possible		No
Type of converter		U converter
Degree of protection (IP)		IP20
Height	mm	231
Width	mm	107
Depth	mm	152
Relative symmetric net frequency tolerance	%	10
Relative symmetric net current tolerance	%	10

Approvals

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Product Standards	UL 508C; CSA-C22.2 No. 14; IEC/EN61800-3; IEC/EN61800-5; CE marking
UL File No.	E172143
UL Category Control No.	NMMS, NMMS7
CSA File No.	UL report applies to both US and Canada
North America Certification	UL listed, certified by UL for use in Canada
Specially designed for North America	No
Suitable for	Branch circuits
Max. Voltage Rating	3~ 480 V AC IEC: TN-S UL/CSA: "Y" (Solidly Grounded Wey)
Degree of Protection	IEC: IP20

Dimensions



